AISLE WIDTH

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AISLE WIDTH

§25.815 -- The passenger aisle width at any point between seats must equal or exceed the following values:

Passenger seating capacity	less than 25 in. from floor	equal or greater than 25 in. from floor
10 or less	12	15
11 through 19	12	20
20 or more	15	20

- Rule does not differentiate between air carrier and private use airplanes

AISLE WIDTH

HISTORY

- Recent FAA initiative to maintain the aisle width in private use aircraft
- Long standing practice, in-flight aisle encroachment allowed (FAA 1963 Memo)
- Letter received from General Aviation Manufactures Association (GAMA)
- FAA Memo dated 11/24/99 states past practices (FAA policy) can only be changes by rulemaking
- FAA concern over in-flight emergency may lead to rulemaking initiative

AISLE WIDTH

Executive/Private Use Airplanes:

- §25.815 compliance finding can be showed using seat location/position for TT&L. Placard must be used to position a seat for TT&L

- Inflight aisle encroachment is permissible (FAA Memorandum issued in 1963)

AISLE WIDTH

Air Carrier Operation Airplanes:

- No aisle encroachment/blockage is allowed

EXECUTIVE INTERIOR TYPE III EXIT ACCESS

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EXECUTIVE INTERIOR

TYPE III EXIT ACCESS

§25.807(a)(3)

Type III exit is a rectangular opening of not less than 20 inches wide by 36 inches high with corner radii not greater than seven inches, and with a step-up inside the airplane of not more than 20 inches. If the exit is located over the wing, the step-down outside the airplane may not exceed 27 inches

EXECUTIVE INTERIOR

TYPE III EXIT ACCESS

§25.813(c)(1) -- There must be access from the nearest aisle to each exit. The access must not be obstructed

§ § 25.813(c)(1)(i) and 25.813(c)(1)(ii) -- Address passenger seating configuration of 60 or more

The specific requirements will not be discussed today

EXECUTIVE INTERIOR

TYPE III EXIT ACCESS

§25.813(c)(2)(i) -- 20 passengers or more

The projected opening of the exit must not be obstructed and interfered by seats, berths, or other protrusions including any seatback in the most adverse position

- Placards can be used to position a seat for TT&L providing that with the seat in any location/position, the unobstructed projected opening is maintained
- Seat or seat back must have positive lockout features if the seat, seat back breakover, or recline, can protrude into the projected exit opening

EXECUTIVE INTERIOR

TYPE III EXIT ACCESS

§25.813(c)(2)(ii) -- 19 passengers or less

The projected exit opening may have minor obstructions if there are compensating factors to maintain the effectiveness of the exit

- Placards can be used to position a seat for TT&L and are considered as "compensating factors"
- TT&L position and all other possible locations/positions of the seat must be evaluated to assure the exit is openable from inside and outside, and the effectiveness of the exit is maintained
- Seat back breakover or recline obstruction are allowed providing they can be moved clear without requiring a mechanical release and meet the criteria above

EXECUTIVE INTERIOR

TYPE III EXIT ACCESS

§25.813(c)(2)(ii) -- Continued

•Unattched, soft seat back cushion on side facing divans may encroach in to the minimum required exit opening providing that the cushion can be readily removed and the exit can be easily opened from the inside and outside

- Instruction to remove the seat back cushion must be included with the exit opening instruction placard
- Exit must be readily and clearly identified if a big, tall seat back installed

•Attached seat cushion on side facing divans may have a maximum of two inches of encroachment if the cushion is readily compressible

EXECUTIVE INTERIOR

TYPE III EXIT ACCESS

§§25.813(c)(2)(i) and 25.813(c)(2)(ii)

•Projected exit opening must be evaluated considering the 25.562 deformation limits when the seat is in the TT&L position

•Projected exit opening is the distance from the interior sidewall next to exit opening to an inboard dimension equal to the minimum seat width dimension in the airplane which is approved for TT&L. For airplane with the extremely wide seat installed, the width of the Type III exit (20 inches) can be used in lieu of the seat width dimension

EXECUTIVE INTERIOR

TYPE III EXIT ACCESS

§25.813(d) -- The passageway between passenger compartments to the exits from any seats in the passenger cabin must not be obstructed. Curtains may be used if they allow free entry through the passageway

Curtain may protrude slightly into the required passageway, provided curtain and its tie-backs do not inhibit passage

USE OF GLASS

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USE OF GLASS

§25.601 -- The airplane may not have design features or details that experience has shown to be hazardous or unreliable. The suitability of each questionable design detail and part must be established by tests.

§25.603 -- The suitability and durability of materials used for parts, the failure of which could adversely affect safety, must:

(a) Be established on the basis of experience or test

USE OF GLASS

§25.603 --

(b) Conform to approved specifications that ensure their having the strength and other properties assumed in the design data, and

(d) Take into account the effects of environmental conditions, such as temperature and humidity, expected in service

•Rule does not differentiate between air carrier and private use airplanes

SAFETY IMPACT

- The use of glass in the passenger cabin has been determined to adversely effect safety
- There is no specific Federal Aviation Regulations
- Some guidance material for glass use in the passenger cabin (AC 25-10)
- Coordinate with ACO upfront for acceptable methods of compliance

CRITERIA

- Past practice has allowed small quantities of glass where functionally necessary (e. g. coffee pots, small video display units consist of either cathode ray tubes (CRT) or liquid crystal displays (LCD))

  Underwriter Laboratories UL 1418 (9/93) is acceptable standards for glass strength and impact resistance

LARGE GLASS PANEL

Decorative partition, dancing floor, etc.

- Coordinate with ACO upfront
- Issue paper will be required to document the acceptable methods of compliance
- Should include the following criteria but not limited to
  - –Withstand 300-pound static abuse load
  - –Withstand the inertia loads contained in 25.561
  - –Underwriters Laboratories UL 1418 criteria is acceptable. Successfully perform the Ball Impact Strength Tests

USE OF GLASS

LARGE GAS-PLASMA DISPLAY MONITORS (a sandwich of large glass panels containing an inert gas under pressure)

- Coordinate with ACO upfront
- Issue paper will be required to document the acceptable methods of compliance
- In additional to the appropriate criteria applied for the large glass panels, the following requirements need to be addressed:
  - –Cabin occupants' health effect due to type and amount of plasma that could be released

USE OF GLASS

LARGE GAS-PLASMA DISPLAY MONITORS

–Withstand the maximum positive differential pressure between within the monitors and the cabin altitude during a worst case cabin depressurization event

–AC 25-10 as applicable

–AC 25-17 as applicable

OFF THE SHELF EQUIPMENT

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OFF THE SHELF EQUIPMENT

WHAT ARE THEY?

- Audio systems
- Video systems
- Telephones
- Games
- Logo lights
- Microwave ovens
- etc...
- You do not have control over its design

OFF THE SHELF EQUIPMENT

- THE APPROVAL CAN BE A ONE TIME STC
  - –Replacement of an approved part number with a different part number must be done through the field approval or STC approval
  - –Part conformity will be done at the final assembly level (i.e. Part number, outline dimension, weight)

OFF THE SHELF EQUIPMENT

- For multiple STC/TC, design control over components is required
- Appropriate criteria need to be developed for multiple or one time approval -- use AC 25-10 and 25-16 for guidance
  - –Withstand the flight , ground, and emergency landing conditions without failures
  - –Meet flammability requirements

OFF THE SHELF EQUIPMENT

- –Wire added to the airplane must also meet flammability requirement
- –Electrical equipment and wiring installation use ac 25-16
- –Electrical load analysis
- –Electromagnetic interference (EMI)
- –Equipment incorporating CRT’s must meet minimum x-ray radiation requirements

OFF THE SHELF EQUIPMENT

–During airplane decompression, CRT's must be shown to be free of arcing. One acceptable means of assurance is to remove power to all CRT components.

–CRT must have impact and implosion protection per ul1418, para. 13.2 and 14.5 or equivalent. labels to the effect must be attached to CRT based appliances.

OFF THE SHELF EQUIPMENT

–Microwave ovens should meet health, education and welfare (HEW) publication (FDA) 8U-8035 or equivalent. Commercially purchased units should have labels attached that certifies compliance. Installed ovens should have the warning labels in a "visible" location.

OFF THE SHELF EQUIPMENT

- Other considerations:
  - –Strength and deformation
  - –Proof of structure
- Compliance inspection must be conducted